



# Validation Tool Status

Engineering Node

June 2006

<http://pds.nasa.gov>



# Overview



- On June 1, 2006, the EN held a telecon with the PDS Technical Staff to discuss Requirements Status and Preliminary Design of the Validation Tool. The attendees were:
  - Atmospheres (Lyle Huber, Joni Johnson), Engineering (Sean Hardman, Paul Ramirez, Steve Hughes, Emily Law, Ron Joyner, Dan Crichton), Imaging (Chris Isbell, Patty Garcia, Alice Stanboli), Geosciences (Ed Guinness, Dan Scholes, Susie Slavney), NAIF (Boris Semenov), PPI (Todd King), Rings (Mitch Gordon), Program Management (Ed Grayzeck), Small Bodies (Anne Raugh), NASA Ames (Mark Rose)
- A number of issues with regard to the requirements were discussed. These are listed on the following slides.
- The Test Plan and Schedule were also discussed. Those slides are included in this document.
- The preliminary design including a state chart for validation was presented.
- A number of action items were assigned, which can be found at the end of this document.
- The architecture of the tool and the scope of a v1.0 delivery was discussed.
  - Validation for specific objects will be discussed and developed over time in subsequent phases/releases of the tool as a collaboration with the nodes. The tool architecture allows these to be independently developed and “plugged” in.



## Issues (1 of 2)

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- **Checksum Inclusion**
  - The issue was whether or not to include the checksum related requirements in the document at this time. Everyone agreed to remove them.
- **Dictionary Creation**
  - The issue was whether or not to include the dictionary creation related requirements. Everyone agreed to remove them from the document.
- **CAT File Value Extraction**
  - The issue was how to support inclusion of standard values from CAT files during validation. An action item was assigned.
- **Validating Partial Labels**
  - The issue was whether partial labels should/could be validated. An action item was assigned.



## Issues (2 of 2)

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- **PSDD Version Determination**
  - Should the Validation Tool determine the appropriate version of PSDD to use for validation? It was decided that the tool should not and probably could not determine the appropriate version.
- **PDS Version Support**
  - Should the Validation Tool validate PDS version 2 and 3 labels? It was felt that only version 3 should be supported but an action item was assigned.
- **Requirements Scope**
  - This issue was more a clarification of the approach to how the requirements document was scoped. Two related action items came from this discussion. The first is to include a tracing to the newly approved level 3 requirements in the next version of the document and the second is to provide a matrix detailing the requirements/capabilities that will be included in the first release of the tool.



# Test Plan

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- **Development Testing**
  - Unit Testing: Tests performed at the code-level.
  - Integration Testing: Tests performed at the application-level.
- **Beta Testing**
  - A phased approach involving Node participation.
- **Acceptance Testing**
  - Final integration testing to be performed for acceptance.
- **Documentation**
  - Test Plan
    - The plan for testing the Validation Tool will be incorporated into the Engineering Node Test Plan.
  - Test Procedures
    - Procedures will be developed detailing the steps to be performed, test data to be used and the results expected.
  - Test Reports
    - Reports will be prepared for and made available for each release of the Validation Tool.
  - Anomaly Tracking
    - Bug reports will be tracked and reported on at release.



# Test Plan

## Development Testing - Unit Testing

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- The goal of unit testing is to isolate each part of the program and show that the individual parts are correct.
- A test case is developed to test the interface and functionality of a single class.
- Test cases are exercised at build time allowing for immediate detection of coding anomalies.
- Test cases are included with the source code providing a good source of documentation and enabling on-site testing.
- Test cases for the Validation Tool will be built and managed with Junit (testing framework).



# Test Plan

## Development Testing - Integration Testing

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- For now, integration is limited to integration of the classes into a single command-line program.
- A regression test suite will be built supported with documented test data.
  - Each test case will include test data (e.g. PDS label), a description of the scenario being tested and an example report/result.
  - A procedure will be put in place for accepting test cases from the Nodes.
  - Test cases will be captured and managed in the source tree.
  - Where feasible, this test suite will be automated.
- Cross-platform tests will be performed on PDS-supported platforms.
- Installer package tests will be performed ensuring proper installation.



## Test Plan Beta Testing

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- Make integration & test build with test procedures available to Node personnel for local testing.
- Implement a phased and iterative approach, initially including three Nodes (ATMOS, GEO and PPI) with increased participation in subsequent phases.
- Provide a method for accepting test cases from the Nodes to be included in the regression test suite.
- Provide a method for tracking bug reports from the Nodes.



# Test Plan

## Acceptance Testing

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- Test cases generated by the Nodes will be fully incorporated into the final regression test suite.
- The final regression test suite will be performed on acceptance build.



# Schedule

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- Present tools status and plan to MC (Mar 2, 2006)
- Requirements Status and Preliminary Design Telecon (Jun 1, 2006)
- Development (Mar - Jun 2006)
  - Requirements RFA Resolution
  - Design
  - Implementation
  - Unit and Integration Test
  - External Code Review
- Pre-Beta Test Telecon (End of Jun 2006; Target: June 29, 2006)
  - Discuss the status of the tool and the process for beta test.
  - Discuss specific objects that will be validated in v1.0 of tool release.
- Beta Test (Begins End of Jun 2006)
  - Beta test to be performed at the nodes.
- Pre-Acceptance Test Telecon (End of Jul 2006; Target: July 27, 2006)
  - Discuss the status of beta testing and the readiness of the tool.
- Acceptance Test (End of Jul 2006)
- Obtain MC approval for deployment (Aug 2006)



## Action Items (1 of 2)

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- 1. Catalog File Value Extraction (Hardman; due 9-Jun-2006)
  - EN will send a proposal to the node tech leads identifying a proposal (plan, date) for addressing keyword validation in catalog files.
- 2. Validating Partial Labels (Hardman; due 9-Jun-2006)
  - EN will send a proposal to the node tech leads which includes a set of requirements for addressing validation of partial labels.
- 3. PDS 2.x Validation (Hughes; due 9-Jun-2006)
  - EN will investigate where PDS 2.x standards are still being used including investigation of Galileo.
- 4. SFDU Validation (Hardman; due 9-Jun-2006)
  - EN will send a proposal on how SFDUs will be handled during validation and will update the state chart accordingly.
- 5. Command-Line Options (All Node Tech Leads; due 9-Jun-2006)
  - Nodes will send comments on the command line options and their preferred default state. The comments should be copied to all node tech leads.



## Action Items (2 of 2)

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- **6. Requirements Document (Hardman; due 16-Jun-2006)**
  - EN will prepare and distribute version 1.3 of the Validation Tool Requirements Document including tracing to the newly approved level 3 requirements and any updates corresponding to RFA resolutions.
- **7. Release Matrix (Hardman; due 30-Jun-2006)**
  - EN will prepare a matrix detailing the requirements/capabilities targeted for the first release of the Validation Tool.
- **8. Label Specific Rules (Hardman; due 30-Jun-2006)**
  - EN will send a list of label specific rules to the nodes defining the rules that are included in releases of the validation tool.
- **9. Sample Reports (Hardman; due 30-Jun-2006)**
  - EN will send out sample reports to the nodes for review.
- **10. Platform Testing (Law, All Node Tech Leads; due 30-Jun-2006)**
  - EN will provide a list of O/S versions the software has been tested on. The nodes will provide requests for additional testing on O/S versions, as necessary.
- **11. Data Object Validation (Hardman; due 30-Jun-2006)**
  - EN will provide a list of initial data objects that will be supported by the validation tool. These objects and the associated plan for adding additional objects will be discussed on a future telecon to be scheduled in four weeks.